

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	31	("3623032"   "3623035"   "3816909"   "3947831"   "4044330"   "4060794"   "4158891"   "4455626"   "4731757"   "4780848"   "4801883"   "4849695"   "4945397"   "5039655"   "5064499"   "5140549"   "5496759"   "5547599"   "5569617"   "5587943"   "5650958"   "5701222"   "5726498"   "5741435"   "5756366"   "5795823"   "5861328"   "5926394"   "5956267"   "5982658"   "6048739").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/03/20 07:30
L5	224	(oxide adj layer) with (magnetoresistive or (spin adj valve) or GMR)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/20 07:31
L6	12	(oxide adj layer) near (magnetoresistive or (spin adj valve) or GMR)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/20 07:33
L7	10	((etch\$3 or remov\$3 or pattern\$3) near (oxide adj layer)) same (magnetoresistive or (spin adj valve) or GMR)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/20 07:36
L8	1	("6657826").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/03/20 07:35
L9	37	((etch\$3 or pattern\$3) near (oxide adj layer)) and (magnetoresistive or (spin adj valve) or GMR)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/20 07:44
L10	41	((etch\$3 or pattern\$3) near (antiferromagnetic adj layer)) and (magnetoresistive or (spin adj valve) or GMR)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/20 07:44
L11	18	((etch\$3 or pattern\$3) near (antiferromagnetic adj layer)) same (magnetoresistive or (spin adj valve) or GMR)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/20 08:06
L12	1	("20040087037").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/03/20 08:07
L13	2	((("20020080645") or ("20020085412"))).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/03/20 08:07

## EAST Search History

S1	4041	29/603.07,603.09,603.13,603.14,417,846,850,854.ccls.	USPAT; JPO; DERWENT	OR	ON	2006/02/24 09:01
S2	5154	magnetoresistive adj (element or material or sensor)	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:15
S3	26298	(connect\$3 or conduct\$3) adj pad	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:08
S4	72	(magnetoresistive adj (element or material or sensor)) and ((connect\$3 or conduct\$3) adj pad)	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:14
S5	6	29/603.07,603.09,603.13,603.14,417,846,850,854.ccls. and ((magnetoresistive adj (element or material or sensor)) and ((connect\$3 or conduct\$3) adj pad))	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:08
S6	79	"5465186".URPN.	USPAT	OR	ON	2004/11/04 15:10
S7	9	("4317149"   "4761699"   "4786993"   "4800454"   "4841395"   "4987514"   "4996623"   "5270645"   "5361547").PN.	USPAT	OR	ON	2004/11/04 15:13
S8	11	((magnetoresistive adj (element or material or sensor)) and ((connect\$3 or conduct\$3) adj pad)) and ((web or substrate) same cut\$3)	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:16
S9	67	(magnetoresistive adj (element or sensor)) and ((connect\$3 or conduct\$3) adj pad)	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:16
S10	54	((magnetoresistive adj (element or sensor)) and ((connect\$3 or conduct\$3) adj pad)) and (web or substrate)	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:16
S11	53	((magnetoresistive adj (element or sensor)) and ((connect\$3 or conduct\$3) adj pad)) and (web or substrate)) and connect\$3	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:30
S12	3	("4847584"   "5247278"   "5583424").PN.	USPAT	OR	ON	2005/09/09 10:24
S13	9	"5952825".URPN.	USPAT	OR	ON	2004/11/04 15:25
S14	527	360/324.1,324.11,324.12.ccls.	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:30

## EAST Search History

S15	2	((magnetoresistive adj (element or sensor)) and ((connect\$3 or conduct\$3) adj pad)) and 360/324.1,324.11,324.12.ccls.	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:31
S16	9121	427/127-131.ccls.	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:31
S17	0	((magnetoresistive adj (element or sensor)) and ((connect\$3 or conduct\$3) adj pad)) and 427/127-131.ccls.	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:31
S18	0	(magnetoresistive adj element) same (conduct\$3 adj pad) same connect\$3 same (web or substrate)	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:33
S19	2	(magnetoresistive adj element) same (conduct\$3 adj pad) same connect\$3	USPAT; JPO; DERWENT	OR	ON	2004/11/04 15:33
S28	2	("4847584").PN.	USPAT; USOCR; JPO; DERWENT	OR	OFF	2004/11/05 09:36
S29	15	"4847584".URPN.	USPAT	OR	ON	2004/11/05 09:41
S30	53	360/316.ccls.	USPAT; JPO; DERWENT	OR	ON	2004/11/09 09:34
S31	8	360/316.ccls. and (MR adj sensors)	USPAT; JPO; DERWENT	OR	ON	2004/11/09 09:34
S34	1	(US-6344951-\$.did.	USPAT	OR	OFF	2004/11/09 09:51
S35	0	((US-6344951-\$.did.) and (MR adj element)	USPAT; JPO; DERWENT	OR	ON	2004/11/09 10:13
S36	0	((US-6344951-\$.did.) and MR	USPAT; JPO; DERWENT	OR	ON	2004/11/09 09:52
S37	1	((US-6344951-\$.did.) and (spin adj valve)	USPAT; JPO; DERWENT	OR	ON	2004/11/09 09:52
S38	0	((((US-6344951-\$.did.) and (spin adj valve)) and pad	USPAT; JPO; DERWENT	OR	ON	2004/11/09 09:52
S39	1	((((US-6344951-\$.did.) and (spin adj valve)) and conduct\$3	USPAT; JPO; DERWENT	OR	ON	2004/11/09 10:05
S41	1680	216/22,48.ccls.	USPAT; JPO; DERWENT	OR	ON	2004/11/09 10:12

## EAST Search History

S42	59	216/22,48.ccls. and (MR adj element)	USPAT; JPO; DERWENT	OR	ON	2004/11/09 10:17
S43	30	(216/22,48.ccls. and (MR adj element)) and magnetiz\$5	USPAT; JPO; DERWENT	OR	ON	2004/11/09 10:13
S44	12	((216/22,48.ccls. and (MR adj element)) and magnetiz\$5) and cut\$4	USPAT; JPO; DERWENT	OR	ON	2004/11/09 10:33
S51	1	(US-6452382-\$).did.	USPAT	OR	OFF	2004/11/09 10:33
S52	0	((US-6452382-\$).did.) and cut\$4	USPAT; JPO; DERWENT	OR	ON	2004/11/09 10:33
S60	7	(US-5247278-\$ or US-5583424-\$ or US-5805390-\$ or US-5952825-\$ or US-6344951-\$ or US-6452382-\$).did. or (JP-10302203-\$).did.	USPAT; JPO	OR	ON	2005/03/23 12:49
S61	3	("6700759").PN.	USPAT; USOCR; JPO; DERWENT	OR	OFF	2005/09/09 15:48
S62	16	("5459099"   "5559654"   "5621596"   "5729410"   "5784224"   "5792510"   "5862022"   "5880912"   "5883763"   "5898548"   "6005753"   "6023395"   "6043960"   "6054023"   "6259586"   "6381107").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 10:12
S63	24	(sensor adj layer) with wall	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:27
S64	0	(sensor adj layer) with ((perpendicular or vertical) near wall)	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:28
S65	2	(sensor adj layer) near wall	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:27
S66	319	(sensor or (spin adj valve) or magnetoresistive) with ((perpendicular or vertical) near wall)	USPAT; JPO; DERWENT	OR	ON	2005/09/09 15:21
S67	27	(sensor or (spin adj valve) or magnetoresistive) with ((perpendicular or vertical) near wall) same (etch\$3 or remov\$3)	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:33

## EAST Search History

S68	0	((sensor adj layer) or ((spin adj valve) near layer) or (magnetoresistive adj element)) with (conductive near wall)	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:34
S69	0	((sensor adj layer) or ((spin adj valve) near layer) or (magnetoresistive adj element)) same (conductive near wall)	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:34
S70	0	((sensor adj layer) or ((spin adj valve) near layer) or (magnetoresistive adj element)) same (conductive near (wall or frame or mask\$3))	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:35
S71	4109	(conductive adj (wall or frame or mask\$3))	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:39
S72	5380	((sensor adj layer) or ((spin adj valve) near layer) or (magnetoresistive adj element))	USPAT; JPO; DERWENT	OR	ON	2005/09/09 11:46
S73	0	S71 and S72	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:36
S74	73	(laminat\$3 or stack\$3 or form\$3 or deposit\$3) with (first adj magnetic adj layer) with (nonmagnetic adj layer) with (second adj magnetic adj layer)	USPAT; JPO; DERWENT	OR	ON	2005/09/11 08:30
S75	0	S71 and S74	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:38
S76	7257	(conductive near (wall or frame or mask\$3))	USPAT; JPO; DERWENT	OR	ON	2005/09/09 11:46
S77	0	S74 and S76	USPAT; JPO; DERWENT	OR	ON	2005/09/09 10:39
S79	5	("6018862"   "6204997"   "6483663"   "6510024"   "6661621").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 11:27
S80	2	("6460243").PN.	USPAT; USOCR; JPO; DERWENT	OR	OFF	2005/09/09 11:27

## EAST Search History

S81	16	("5459099"   "5559654"   "5621596"   "5729410"   "5784224"   "5792510"   "5862022"   "5880912"   "5883763"   "5898548"   "6005753"   "6023395"   "6043960"   "6054023"   "6259586"   "6381107").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 11:30
S82	3	S72 and S76	USPAT; JPO; DERWENT	OR	ON	2005/09/09 11:34
S83	7153	narrow with sensor	USPAT; JPO; DERWENT	OR	ON	2005/09/09 11:35
S84	161	S72 and S83	USPAT; JPO; DERWENT	OR	ON	2005/09/09 11:35
S85	0	S76 and S84	USPAT; JPO; DERWENT	OR	ON	2005/09/09 11:35
S86	67	S84 and mask\$3	USPAT; JPO; DERWENT	OR	ON	2005/09/09 11:41
S89	14	("4914538"   "5268806"   "5491600"   "5668688"   "5680282"   "5828232"   "5883764"   "5901018"   "6002553"   "6023395"   "6114719"   "6118638"   "6134089"   "6249407").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 11:43
S90	1634	((sensor adj layer) or ((spin adj valve) near layer) or (magnetoresistive adj element))	US-PGPUB	OR	ON	2005/09/11 08:27
S91	1484	(conductive near (wall or frame or mask\$3))	US-PGPUB	OR	ON	2005/09/09 11:47
S92	6	S90 and S91	US-PGPUB	OR	ON	2005/09/09 13:36
S93	197	360/324.2.ccls.	US-PGPUB	OR	ON	2005/09/09 13:38
S94	176	S93 and tunnel	US-PGPUB	OR	ON	2005/09/09 13:36
S95	115	S93 and tunnel and MR	US-PGPUB	OR	ON	2005/09/09 13:37
S96	57	S93 and tunnel and MR and etch\$3	US-PGPUB	OR	ON	2005/09/09 13:37
S98	412	360/324.2.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2005/09/09 13:39
S99	64	S98 and (tunnel\$3 same MR same layer\$1) and etch\$3	US-PGPUB; USPAT; EPO; JPO	OR	ON	2005/09/09 13:39

## EAST Search History

S10 1	14	("4914538"   "5268806"   "5491600"   "5668688"   "5680282"   "5828232"   "5883764"   "5901018"   "6002553"   "6023395"   "6114719"   "6118638"   "6134089"   "6249407").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 14:54
S10 2	13	("4502914"   "4599790"   "4759822"   "4774206"   "4803181"   "4857477"   "4947413"   "4968646"   "5089913"   "5102827"   "5110760"   "5231040"   "5288654").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 15:00
S10 3	12	("4343082"   "4358340"   "4432132"   "4455738"   "4502914"   "4568565"   "4578157"   "4608271"   "4645563"   "4784718"   "4803181"   "4886763").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 15:01
S10 4	6	("4042726"   "4313782"   "4331708"   "4334348"   "4354896"   "4454014").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 15:05
S10 5	104	("4502914").URPN.	USPAT	OR	ON	2005/09/09 15:07
S10 6	9	("4502914"   "4803181"   "5595941"   "5665203"   "5705321"   "5710066"   "5714039"   "5895740"   "6291137").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 15:12
S10 7	9	("4502914"   "4803181"   "5595941"   "5665203"   "5705321"   "5710066"   "5714039"   "5895740"   "6291137").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 15:13
S10 8	8	("4502914"   "4803181"   "5595941"   "5665203"   "5705321"   "5710066"   "5714039"   "5895740").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/09/09 15:13
S10 9	2	("6291137").URPN.	USPAT	OR	ON	2005/09/09 15:13
S11 0	35	(sensor or (spin adj valve) or magnetoresistive) with ((perpendicular or vertical) near wall)	EPO; JPO	OR	ON	2005/09/09 15:22
S11 1	947	(sensor or (spin adj valve) or magnetoresistive) with etch\$3	EPO; JPO	OR	ON	2005/09/09 15:22
S11 2	0	(sensor or (spin adj valve) or magnetoresistive) with etch\$3 with liftoff	EPO; JPO	OR	ON	2005/09/09 15:22
S11 3	1	(sensor or (spin adj valve) or magnetoresistive) with etch\$3 with (lift adj off)	EPO; JPO	OR	ON	2005/09/09 15:22

## EAST Search History

S11 4	31	(bias adj layers) near sensor	USPAT; JPO; DERWENT	OR	ON	2005/09/09 16:01
S11 7	3	("6700759").PN.	USPAT; USOCR; JPO; DERWENT	OR	OFF	2005/09/09 15:48
S12 2	0	(plurality near (bias adj layers)) and (pole adj tip)	USPAT; JPO; DERWENT	OR	ON	2005/09/09 16:02
S12 3	227	((bias adj layers)) and (pole adj tip)	USPAT; JPO; DERWENT	OR	ON	2005/09/09 16:02
S12 4	21	((bias adj layers)) same (pole adj tip)	USPAT; JPO; DERWENT	OR	ON	2005/09/09 16:02
S12 5	34	((sensor adj layer) or ((spin adj valve) near layer) or (magnetoresistive adj element)) same (liftoff or (lift adj off))	US-PGPUB	OR	ON	2005/09/11 08:28
S12 7	276	((sensor adj layer) or ((spin adj valve) near layer) or (magnetoresistive adj element)) and (liftoff or (lift adj off))	US-PGPUB	OR	ON	2005/09/11 08:35
S12 9	9	(spin adj valve) with (first adj magnetic adj layer) with (nonmagnetic adj layer) with (second adj magnetic adj layer)	USPAT; JPO; DERWENT	OR	ON	2005/09/11 08:30
S13 0	26	((sensor adj layer) or ((spin adj valve) near layer) or (magnetoresistive adj element)) and ((first adj magnetic adj layer) with (nonmagnetic adj layer) with (second adj magnetic adj layer))	US-PGPUB	OR	ON	2005/09/11 08:34
S13 2	1634	((sensor adj layer) or ((spin adj valve) near layer) or (magnetoresistive adj element))	US-PGPUB	OR	ON	2005/09/11 08:35
S13 5	2	("6282069").PN.	USPAT; USOCR; JPO; DERWENT	OR	OFF	2005/09/11 08:37
S13 7	81	204/192.15.ccls. and (sputtering with (conductive adj (layer or material)))	USPAT; JPO; DERWENT	OR	ON	2005/09/11 09:50
S13 8	0	S132 and S137	USPAT; JPO; DERWENT	OR	ON	2005/09/11 09:45



## EAST Search History

S13 9	6	S137 and sensor	USPAT; JPO; DERWENT	OR	ON	2005/09/11 09:45
S14 0	1	(US-6153062-\$).did.	USPAT	OR	ON	2005/09/11 09:50
S14 1	1	S140 and sputtering	USPAT; JPO; DERWENT	OR	ON	2005/09/11 09:50
S14 2	2	("6556391").PN.	US-PGPUB; USPAT; USOCR; JPO; DERWENT	OR	OFF	2006/02/24 09:02
S14 3	12	("20020006020"   "5739987"   "5898548"   "5901018"   "6157526"   "6185080"   "6210810"   "6266218"   "6295186"   "6327107"   "6333842"   "6381107").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/02/24 09:02
S14 4	21	(US-20030011941-\$).did. or (US-6433970-\$ or US-6862798-\$ or US-6291137-\$ or US-6185081-\$ or US-5996213-\$ or US-6833979-\$ or US-6054023-\$ or US-4502914-\$ or US-6153062-\$ or US-6423475-\$ or US-5459099-\$ or US-6282069-\$ or US-6519118-\$ or US-4803181-\$ or US-6327107-\$ or US-6266218-\$ or US-6185080-\$ or US-5901018-\$ or US-5898548-\$).did. or (JP-11224411-\$).did.	US-PGPUB; USPAT; JPO	OR	ON	2006/02/24 09:08
S14 5	0	S144 and (soft near magnetic\$4 near layer)	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/24 09:09
S14 6	2	S144 and (soft near magnetic\$4)	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/24 09:09
S15 4	177	(protect\$3 adj layer) with (bias\$3 adj (layer or material))	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:33
S15 5	5072	(etch\$3 or remov\$3) near (protect\$3 adj layer)	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:31
S15 6	12	S154 and S155	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 09:56

## EAST Search History

S15 7	17	("5018037"   "5079035"   "5287238"   "5408377"   "5442507"   "5465185"   "5701223"   "5768067"   "5784225"   "5869963"   "5959810"   "6038107"   "6061211"   "6117569"   "6134090"   "6219207"   "6327122").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/02/28 10:01
S15 8	25	("5018037"   "5079035"   "5287238"   "5408377"   "5442507"   "5465185"   "5701223"   "5705973"   "5751521"   "5768067"   "5784225"   "5869963"   "5949623"   "5959810"   "5995338"   "6038107"   "6061211"   "6117569"   "6134090"   "6175477"   "6185078"   "6219207"   "6243241"   "6262869"   "6327122").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/02/28 10:03
S15 9	10	("5959810"   "5995338"   "6061211"   "6074767"   "6118624"   "6128167"   "6134090"   "6175477"   "6201673"   "6243241").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/02/28 10:22
S16 2	6	("5438470"   "6025979"   "6040962"   "6093444"   "6141190"   "6146775").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/02/28 10:23
S16 3	8	("4271441"   "4639806"   "4663685"   "4803580"   "5005096"   "5018037"   "5168409"   "5351158").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/02/28 10:25
S16 4	7	("4663685"   "5018037"   "5206590"   "5438470"   "5608593"   "5699213"   "5936810").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/02/28 10:25
S16 5	8	("4271441"   "4639806"   "4663685"   "4803580"   "5005096"   "5018037"   "5168409"   "5351158").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/02/28 10:26
S16 6	13	("4024489"   "5018037"   "5438470"   "5641557"   "5646805"   "5701221"   "5739988"   "5739990"   "5748416"   "5754376"   "5805389"   "5847904"   "5876843").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/02/28 10:26
S16 7	15	("5876843").URPN.	USPAT	OR	ON	2006/02/28 10:27

## EAST Search History

S16 8	30	(US-20030011941-\$).did. or (US-5996213-\$ or US-5459099-\$ or US-6054023-\$ or US-5898548-\$ or US-6433970-\$ or US-5901018-\$ or US-4803181-\$ or US-4502914-\$ or US-6862798-\$ or US-6423475-\$ or US-6291137-\$ or US-6185081-\$ or US-6519118-\$ or US-6833979-\$ or US-6153062-\$ or US-6327107-\$ or US-6185080-\$ or US-6282069-\$ or US-6266218-\$ or US-5648298-\$ or US-6791804-\$ or US-6690554-\$ or US-6587315-\$ or US-5959810-\$ or US-6118624-\$ or US-5876843-\$). did. or (US-6663987-\$).did. or (JP-11224411-\$ or JP-63312634-\$). did.	US-PGPUB; USPAT; JPO	OR	ON	2006/02/28 10:29
S16 9	3	S155 and S168	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:29
S17 0	1069	((etch\$3 or remov\$3) near (protect\$3 adj layer)).clm.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:29
S17 1	448	(etch\$3 or remov\$3) near (oxidiz\$5 adj layer)	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:31
S17 2	68	((etch\$3 or remov\$3) near (oxidiz\$5 adj layer)).clm.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:31
S17 3	3	S170 and S172	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:32
S17 4	1134	S170 or S172	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:32
S17 5	177	((protect\$3 or oxidiz\$5) adj layer) with (bias\$3 adj (layer or material))	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:17
S17 6	6	S174 and S175	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:34

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S17 7	5513	S155 or S171	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:34
S17 8	12	S175 and S177	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 10:34
S17 9	0	jp-1131313-\$.did.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:13
S18 0	2	jp-10131313-\$.did.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:11
S18 1	1	jp-01131313-\$.did.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:12
S18 2	7	"1131313"	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:12
S18 3	0	jp-08450373-\$.did.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:13
S18 4	0	jp-0845037-\$.did.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:13
S18 5	2	jp-08045037-\$.did.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:14
S18 6	0	jp-9282618-\$.did.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:14
S18 7	2	jp-09282618-\$.did.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:14
S18 8	6445	(magnetoresist\$3 near (element or device))	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/02/28 11:15

## EAST Search History

S19 4	8	((("6040962") or ("5438470") or ("6141190") or ("6344953"))).PN.	US-PGPUB; USPAT; USOCR; JPO; DERWENT	OR	OFF	2006/02/28 11:37
S19 5	127	(seed adj layer) with (hard adj bias)	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/03/03 09:26
S19 6	18	(seed adj layer) with (hard adj bias) with (free adj layer)	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/03/03 08:20
S19 7	14	((("6353318") or ("6417999") or ("6262869") or ("6434814") or ("6238531") or ("6473277") or ("6447839"))).PN.	US-PGPUB; USPAT; USOCR; JPO; DERWENT	OR	OFF	2006/03/03 07:41
S19 8	143	PINARBASI-MUSTAFA.in.	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/03/03 07:41
S19 9	415	(hard adj bias) with (free adj layer)	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/03/03 07:45
S20 0	56	S198 and S199	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/03/03 08:19
S20 1	42	S200 and (seed adj layer)	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/03/03 07:42
S20 2	13	S200 and S195	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/03/03 07:42
S20 3	1	(hard adj bias) with (free adj layer) with coplan\$3	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/03/03 07:45
S20 4	91	(seed adj layer) same (hard adj bias) same (free adj layer)	US-PGPUB; USPAT; JPO; DERWENT	OR	ON	2006/03/03 08:20
S20 5	0	(seed adj layer) same (hard adj bias) same (free adj layer)	EPO; JPO	OR	ON	2006/03/03 08:20

## EAST Search History

S20 6	0	(seed adj layer) and (hard adj bias) and (free adj layer)	EPO; JPO	OR	ON	2006/03/03 08:20
S20 7	4	(hard adj bias) and (free adj layer)	EPO; JPO	OR	ON	2006/03/03 08:25
S20 8	2	("6421212").PN.	US-PGPUB; USPAT; USOCR; JPO; DERWENT	OR	OFF	2006/03/03 08:25
S20 9	1	(US-20040047087-\$.)did.	US-PGPUB	OR	ON	2006/03/03 09:24
S21 4	10	((("5496759") or ("5861328") or ("5940319") or ("6048739") or ("6153443") or ("6165083") or ("6174737") or ("6211090") or ("6392922") or ("6500676"))).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/03/17 11:19
S21 5	55	BASEMAN-DANIEL-l.in. or BERG-LONNY-l.in. or KATTI-ROMNEY-r.in. or REED-DANIEL-s.in. or SHAW-GORDON-a.in. or ZOU-WEI-d-z.in.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 11:21
S21 6	41	S215 and (magnetoresistive or (spin adj valve))	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 11:29
S21 7	8	S216 and (etch\$3 near stop)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 11:29
S21 8	1	("6717194").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/03/17 11:27
S21 9	1928	(magnetoresistive or (spin adj valve) or GMR) same ((etch\$3 near stop) or protect\$3)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 11:30
S22 0	108	(magnetoresistive or (spin adj valve) or GMR) same ((etch\$3 near stop) or protect\$3) same (photoresist)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 11:30
S22 1	18	(magnetoresistive or (spin adj valve) or GMR) same ((etch\$3 near stop) or protect\$3) same (photoresist) same oxide	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:30
S22 2	10	("3381171"   "4731757"   "4780848"   "4897288"   "5496759"   "5569617"   "6381171"   "6487110"   "6555858").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/03/17 11:33

## EAST Search History

S22 3	5	("4731757"   "4780848"   "5060193"   "5064499"   "5424236").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/03/17 11:34
S22 4	40	("5569617").URPN.	USPAT	OR	ON	2006/03/17 11:35
S22 5	191	(magnetoresistive or (spin adj valve) or GMR) near ((etch\$3 near stop) or protect\$3)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:48
S22 6	15	(magnetoresistive or (spin adj valve) or GMR) near (oxide near layer)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:31
S22 7	42	(magnetoresistive or (spin adj valve) or GMR) near (oxide)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:31
S22 8	1	S225 and S227	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:31
S22 9	1166	(magnetoresistive or (spin adj valve) or GMR) with (oxide)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:33
S23 0	20	S225 and S229	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:32
S23 1	103	(form\$3 or provid\$3) with (magnetoresistive or (spin adj valve) or GMR) with (oxide near layer)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:38
S23 2	1	S225 and S231	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:34
S23 3	29	((form\$3 or provid\$3) with (magnetoresistive or (spin adj valve) or GMR) with (oxide near layer)).clm.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:34
S23 4	21	((magnetoresistive or (spin adj valve) or GMR) near ((etch\$3 near stop) or protect\$3)).clm.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:34
S23 5	1	S233 and S234	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:34
S23 6	23	((etch\$3 near stop) or protect\$3) with (magnetoresistive or (spin adj valve) or GMR) with (oxide near layer)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:41
S23 7	2	(("5715152") or ("5583725")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/03/17 12:41

## EAST Search History

S23 8	25	(magnetoresistive or (spin adj valve) or GMR or (tunnel near junction)) with (antiferromagnetic near oxid\$5)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2006/03/17 12:48
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IEEE STD IEEE Standard

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